

In some embodiments of the present invention, level dependent temporal feedback functions may be used such that only a small fraction of fMask is applied to the combined feedback function at mid levels. As a non-limiting example, a normalized C1 can be used in the spatial feedback function as a weighting function for fMask as well.

5           The terms and expressions employed in the foregoing specification are used therein as terms of description and not of limitation, and there is no intention in the use of such terms and expressions of excluding equivalents of the features shown and described or portions thereof, it being recognized that the scope of the invention is defined and limited only by the claims that follow.

10           We claim:

1. A method for creating a dither pattern, said method comprising:
  - a. establishing an initial reference frameset (IRF), wherein said IRF comprises an initial pixel pattern;
  - b. creating a dither pattern by orienting pixel values in said pattern by a method wherein pixel values are placed in a position that is dispersed from position of pixel values in said initial pixel pattern and the position of pixel values in said dither pattern.
2. A method according to claim 1 wherein said initial pixel pattern and said dither pattern are divided into multiple color channels.
3. A method according to claim 1 wherein said dispersion from pixel values in said initial pixel pattern is weighted differently from dispersion from said pixel values in said dither pattern.
4. A method according to claim 2 wherein said dispersion from pixel values in a first color channel is weighted differently from said dispersion from pixel values in another color channel.

5. A method for creating a dither pattern for a multiple image description channel image, said method comprising:

designating pixel values in a plurality of dither pattern tiles, each of said tiles being allocated to an image description channel, wherein said designating is performed using cross-channel feedback, such that subsequently-designated pixel values are placed at a location that is related to the location of previously-designated pixel values in the same image description channel and related to the location of previously-designated pixel values in other image description channels.

6. A method according to claim 5 wherein said “related to the location” comprises dispersion from the location.
7. A method according to claim 5 wherein said “related to the location” comprises dispersion from the location using an infinite impulse response function.
8. A method according to claim 5 wherein said relation to the location of previously-designated pixels is channel specific such that pixel values in one color channel will disperse differently than pixel values in another channel.
9. A method according to claim 5 wherein said relation to the location of previously-designated pixels is channel specific such that pixel values in color channels other

than the channel of the pixel being designated will disperse differently than pixel values in the same channel.

10. A method according to claim 5 wherein said image description channels are color channels.

11. A method according to claim 5 wherein said image description channels comprise three channels for each of a red, green and blue color.

12. A method according to claim 5 wherein pixel values in said channels are designated in a sequence one channel at a time with cross-channel feedback being used to designate pixel locations after a first channel is designated.

13. A method according to claim 5 wherein pixel values in said channels are designated in parallel with cross-channel dispersion feedback for each channel.

14. A method for creating a spatio-temporal array of dither patterns, said method comprising:
- a. establishing a spatio-temporal array of dither pattern tiles comprising a plurality of temporal framesets, each of said framesets comprising a plurality of pattern tiles for each of a plurality of color channels; and
  - b. designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels.
15. A method according to claim 14 wherein said subsequently-designated pixel values are also dispersed from previously-designated pixel values in other temporal frames.
16. A method according to claim 15 wherein said dispersion from pixel values in other temporal frames is weighted wherein temporal frames more temporally distant from a pixel value have a lower dispersion than closer temporal frames.
17. A method according to claim 15 wherein said dispersion from pixel values in other color channels is weighted wherein other color channels have a lower dispersion than the color channel in which a pixel value is designated.
18. A method according to claim 15 wherein pixel values designated in a last temporal frame are considered temporally adjacent to a first-designated frame

wherein said pixel values in said first-designated frame have a dispersion effect on pixels designated in said last frame.

19. A method for creating a dither pattern, said method comprising:

- a. establishing an initial reference frameset (IRF), wherein said IRF comprises a dither pattern;
- b. designating, a first pixel value in a dither pattern for a first channel, wherein said first value is located at a position that is dispersed from the positions of pixel values in said pattern in said IRF;
- c. designating a second pixel value in said dither pattern for a first channel, wherein said second value is located at a position that is dispersed from the positions of pixel values in said dither pattern and in said IRF;
- d. repeating said designating in step c until all pixel values in said dither pattern for said first channel are designated;
- e. designating, a first pixel value in a dither pattern for a second channel, wherein said first value is located at a position that is dispersed from the positions of pixel values in said dither pattern for said first channel and in said IRF;
- f. designating a second pixel value in said dither pattern for a second channel, wherein said second value is located at a position that is dispersed from the positions of pixel values in said dither pattern for a second channel, pixel values in said dither pattern for a first channel and dither patterns in said IRF;
- g. repeating said designating in step f until all pixel values in said dither pattern for said second channel are designated; and
- h. repeating steps e through f for any other channels.

20. A method for creating a spatio-temporal array of dither patterns, said method comprising:

- a. establishing an initial temporal offset frameset (ITOF), wherein said ITOF comprises a pre-determined pattern for each of a plurality of color channels;
- b. establishing a first temporal frameset comprising dither pattern tiles for each of a plurality of color channels;
- c. designating a first pixel value at a first point in a first dither pattern tile of said first temporal frameset, wherein said first point is dispersed from at least one pixel value in said pre-determined pattern;
- d. designating a second pixel value at a second point in said first dither pattern tile of said first temporal frameset, wherein said second point is placed at a location that is dispersed away from at least one pixel value in said first dither pattern tile;
- e. repeating step d until all pixel values in said first dither pattern tile of said first temporal frameset have been designated;
- f. designating a first pixel value at a first point in a second dither pattern tile of said first temporal frame, wherein said first point is dispersed from at least one pixel value in said first dither pattern tile;
- g. designating a second pixel value at a second point in said second dither pattern tile of said first temporal frameset, wherein said second point is placed at a location that is dispersed away from at least one other pixel value in said first dither pattern tile;



- h. repeating step g until all pixel values in said second dither pattern tile have been designated;
- i. repeating steps f, g & h until all pixels in all dither pattern tiles in said first temporal frameset have been designated;
- j. establishing a subsequent temporal frameset comprising dither pattern tiles for each of said plurality of color channels;
- k. designating a first pixel value at a first point in a first dither pattern tile of said subsequent temporal frameset, wherein said first point is dispersed from at least one pixel value in said first temporal frameset;
- l. designating a second pixel value at a second point in said first dither pattern tile of said subsequent temporal frameset, wherein said second point is placed at a location that is dispersed away from at least one pixel value in said subsequent temporal frameset, at least one pixel value in at least one prior frameset;
- m. repeating step l until all pixel values in said first dither pattern tile of said subsequent temporal frameset have been designated;
- n. designating a first pixel value at a first point in a second dither pattern tile of said subsequent temporal frame, wherein said first point is dispersed from at least one pixel value in said subsequent temporal frameset, at least one pixel value in a prior frameset;

- o. designating a second pixel value at a second point in said second dither pattern tile of said subsequent temporal frameset, wherein said second point is placed at a location that is dispersed away from at least one pixel value in said subsequent temporal frameset, at least one pixel value in a prior temporal frameset;
- p. repeating step o until all pixel values in said second dither pattern tile have been designated;
- q. repeating steps n, o & p until all pixels in all dither pattern tiles in said subsequent temporal frameset have been designated;
- r. repeating steps j-q for a plurality of framesets.

21. A system for creating a spatio-temporal array of dither patterns, said method comprising:

- a. a spatio-temporal array of dither pattern tiles comprising a plurality of temporal framesets, each of said framesets comprising a plurality of pattern tiles for each of a plurality of color channels; and
- b. a designator for designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels.

22. A set of executable instructions for creating a spatio-temporal array of dither patterns, said method comprising:

- a. establishing a spatio-temporal array of dither pattern tiles comprising a plurality of temporal framesets, each of said framesets comprising a plurality of pattern tiles for each of a plurality of color channels; and
- b. designating pixel values in said dither pattern tiles wherein subsequently-designated pixel values are spatially dispersed from previously-designated pixel values in the same dither pattern tile and dither pattern tiles in other color channels.